



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,769	04/21/2006	Takeshi Hikawa	DK-US065052	8262

22919 7590 02/21/2007
GLOBAL IP COUNSELORS, LLP
1233 20TH STREET, NW, SUITE 700
WASHINGTON, DC 20036-2680

EXAMINER

LEYKIN, RITA

ART UNIT	PAPER NUMBER
----------	--------------

2837

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/576,769

Applicant(s)

HIKAWA ET AL.

Examiner

Rita Leykin

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,6,9,10,15,18,20 and 25 is/are rejected.
- 7) ☐ Claim(s) 2-5,7,8,11-14,16,17,19,21-24 and 26-28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/21/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 9, 10, 18, 20, 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Ursworth et al. US # 5,510,687.

With respect to claims 1, 9, 10, 18, Ursworth et al. discloses an electric motor controller with temperature protection. Wherein in abstract Ursworth et al. teach indicating the magnitude of the dc electric current flowing through motor winding. A voltage sensor provides value that indicates voltage across motor winding. The resistance of the motor winding is determined from sensed current and voltage values and is used to calculate the temperature of the motor, (see col.11, lines 1-14).

With respect to claims 20, 25 Ursworth teach that in order to calculate temperature during motor operation, a reference value for the stator winding resistance at a known temperature must be determined first. This determination is carried out during a calibration phase of operation, (see col. 7, lines 15-23).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2837

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ursworth et al. US # 5,510,687 and Hikawa et al. US # 2005/0247073.

The limitations of the base claims 1 and 10 have been discussed in the rejection above. Ursworth et al. do not teach motor driving a compressor. However, Hikawa et al. teach detection of current and voltage of a three-phase coil brushless dc motor, and prediction of the internal condition of a compressor from detected values.

Hence, it has been obvious to one of ordinary skills in the art, at the time invention was made to control compressor operation, as in Hikawa et al. structure based on control of dc motor as in Ursworth et al. teaching.

The reason is to protect motor from overheating.

Allowable Subject Matter

5. Claims 2-5, 7,8, 11-14, 16, 17, 19, 21-24, 26-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2837

6. The following is a statement of reasons for the indication of allowable subject matter.

7. The prior art made of record in the attached form PTO-892 considered to be pertinent to the submitted application. However, none of the prior art teaches or suggests claimed limitations in combination with:

- Duty ratios;
- Fixed coordinate system;
- Performing calculation of coil resistance at a carrier frequency lower than that for driving the dc motor;
- Setting the predetermined temperature based on calculated temperature;
- Setting a time interval until starting of the dc motor based on estimated temperature;
- Calculating of coil resistance based on voltage drop due to transistors and diodes in the inverter;
- Detection of central timing of an ON-time or OFF-time;
- Detection of motor current under a condition that a predetermined voltage is output by using PAM circuitry.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Leykin whose telephone number is (571)272-2066.

The examiner can normally be reached on Monday-Friday 8:00-4:30.

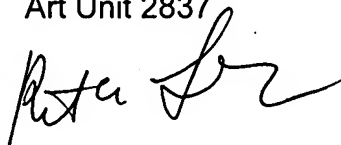
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571)272-2800 ext. 33. The fax phone

Art Unit: 2837

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rita Leykin
Primary Examiner
Art Unit 2837



R.L.